

CLAIMS

What is claimed is:

- 1 1. A method for counteracting lens vignetting, comprising:
 - 2 resetting pixels of an image sensor; and
 - 3 reading pixels of the image sensor after they have been reset such that the time
 - 4 between resetting and reading is greater for pixels adjacent edges of the sensor than
 - 5 for pixels adjacent a center of the sensor.

- 1 2. The method of claim 1, wherein resetting pixels comprises resetting
2 pixels on a line-by-line basis across the image sensor.

- 1 3. The method of claim 2, wherein resetting pixels further comprises
2 resetting pixels beginning from one edge of the sensor and ending at an opposite edge
3 of the sensor.

- 1 4. The method of claim 2, wherein resetting pixels further comprises
2 resetting pixels beginning from the center of the sensor and ending at opposite edges
3 of the sensor.

- 1 5. The method of claim 1, wherein resetting pixels comprises resetting all
2 sensor pixels at substantially the same time.

1 6. The method of claim 1, wherein reading pixels comprises reading
2 pixels beginning from one edge of the sensor and ending at an opposite edge of the
3 sensor.

1 7. The method of claim 1, wherein reading pixels comprises reading
2 pixels beginning from the center of the sensor and ending at opposite edges of the
3 sensor.

1 8. The method of claim 1, wherein reading pixels comprises reading
2 pixels such that pixel exposure time increases as a function of distance from the center
3 of the sensor.

1 9. The method of claim 1, wherein reading pixels comprises reading
2 pixels such that reading of pixels spaced from the center of the sensor is delayed
3 relative to reading of pixels adjacent the center of the sensor so that exposure time for
4 the pixels spaced from the center of the sensor is greater than for pixels adjacent the
5 center of the sensor.

1 10. The method of claim 1, wherein reading pixels comprises reading
2 selected pixels of selected lines so as to form a curved read line representative of
3 progression of pixel reading across the sensor.

1 11. The method of claim 1, wherein reading pixels comprises reading
2 pixels such that pixels are reset and read with a varying relative speed of progression.

1 12. The method of claim 11, wherein reading pixels further comprises
2 resetting pixels at a constant reset rate and adjusting the speed at which pixels are read
3 such that a pixel reading rate is higher adjacent the center of the sensor as compared
4 to adjacent edges of the sensor.

1 13. The method of claim 1, wherein pixels are reset and read such that
2 exposure times are increased for the sensor pixels as a function of their distance from
3 the center of the sensor in both a horizontal and a vertical direction.

1 14. The method of claim 1, wherein reading pixels comprises reading
2 pixels beginning at the center of the image sensor and spiraling outward so that pixels
3 adjacent the center of the sensor are read first and pixels adjacent edges of the sensor
4 are read last.

1 15. A method for counteracting lens vignetting, comprising:
2 resetting pixels of an image sensor in a line-by-line manner; and
3 reading pixels of the image sensor after they have been reset, wherein the
4 pixels are read such that:

5 (a) relative to a direction of progression across the image
6 sensor, reading of pixels spaced from a center of the image sensor is
7 delayed relative to reading of pixels adjacent the center of the sensor
8 such that exposure time for pixels spaced from the center of the sensor
9 is greater than for pixels adjacent the center of the sensor, and
10 (b) pixels are reset and read with a varying relative speed of
11 progression such that a pixel reading rate is higher adjacent the center
12 of the sensor as compared to adjacent edges of the sensor.

1 16. The method of claim 15, wherein resetting pixels further comprises
2 resetting pixels beginning from one edge of the sensor and ending at an opposite edge
3 of the sensor.

1 17. The method of claim 15, wherein resetting pixels further comprises
2 resetting pixels beginning from the center of the sensor and ending at opposite edges
3 of the sensor.

1 18. The method of claim 15, wherein reading pixels comprises reading
2 pixels such that pixel exposure time increases as a function of distance from the center
3 of the sensor.

1 19. The method of claim 15, wherein pixels are reset and read such that
2 exposure times are increased for the sensor pixels as a function of their distance from
3 the center of the sensor in both a horizontal and a vertical direction.

1 20. A system for counteracting lens vignetting, comprising:
2 a solid-state image sensor including a plurality of randomly-accessible pixels;
3 and
4 logic configured to read sensor pixels after they have been reset such that the
5 time between resetting and reading is greater for pixels adjacent edges of the sensor
6 than for pixels adjacent a center of the sensor.

1 21. The system of claim 20, wherein the image sensor comprises a
2 complimentary metal oxide semiconductor (CMOS) sensor.

1 22. The system of claim 20, wherein the logic is configured to read pixels
2 in a manner in which pixel exposure time increases as a function of distance from the
3 center of the sensor.

1 23. The system of claim 20, wherein the logic is configured to read pixels
2 in a manner in which reading of pixels spaced from a center of the sensor is delayed
3 relative to reading of pixels adjacent the center of the sensor such that exposure time
4 for pixels spaced from the center of the sensor is greater than for pixels adjacent the
5 center of the sensor.

1 24. The system of claim 20, wherein the logic is configured to read pixels
2 in a manner in which pixels are reset and read with a varying relative speed of
3 progression.

1 25. A system for counteracting lens vignetting, comprising:
2 means for collecting light; and
3 means for reading the means for collecting light, the means for reading being
4 configured to read such that an exposure time for portions of the means for collecting
5 light adjacent its center is less than an exposure time for portions of the means for
6 collecting light data adjacent its edges.

1 26. The system of claim 25, wherein the means for collecting light data
2 comprise a complimentary metal oxide semiconductor (CMOS) sensor that includes a
3 plurality of randomly-addressable pixels.

1 27. The system of claim 25, wherein the means for reading are configured
2 to read the randomly-addressable pixels in a manner such that pixel exposure times
3 increase as a function of distance from the center of the sensor in both a horizontal
4 and a vertical direction.

1 28. A digital camera, comprising:
2 a lens system;
3 a solid-state image sensor that receives light transmitted by the lens system,
4 the image sensor including a plurality of randomly-accessible pixels; and
5 a counter-vignetting algorithm that is configured to reset sensor pixels and
6 then read the reset pixels in a manner in which the time between resetting and reading,
7 and therefore pixel exposure, is greater for pixels adjacent edges of the sensor than for
8 pixels adjacent a center of the sensor.

1 29. The camera of claim 28, wherein the solid-state image sensor
2 comprises a complimentary metal oxide semiconductor (CMOS) sensor.

1 30. The camera of claim 28, wherein the counter-vignetting algorithm is
2 configured to read pixels in a manner in which pixel exposure time increases as a
3 function of distance from the center of the sensor.